

Appl. No. : 09/668,788
Filed : September 22, 2000

IN THE CLAIMS

Please amend Claims 1-5 as follows:

1. (Twice Amended) A process for the production of glycolipids in transgenic cells and/or organisms using a processive lipid glycosyl transferase that successively transfers hexose residues to a lipid acceptor, comprising:

- transferring a nucleic acid molecule that codes for a protein having the enzymatic activity of a processive diacylglycerol glycosyltransferase to the cells or organisms,
- expressing the protein having the enzymatic activity of a processive diacylglycerol glycosyltransferase under suitable regulatory sequences in the cells or the organisms, and
- recovering glycolipids synthesized by the enzymatic activity of a processive diacylglycerol glycosyltransferase from the cells or the organisms if desired.

2. (Twice Amended) The process according to claim 1, wherein the nucleic acid molecule codes for a protein having the enzymatic activity of a processive lipid glycosyl transferase from *Bacillus subtilis* or *Staphylococcus aureus*.

3. (Twice Amended) The process according to claim 1, wherein the transgenic cells are selected from the group consisting of plant, yeast and bacterial cells, and the organism is a plant.

4. (Twice Amended) The process according to Claim 1, wherein the glycolipids are selected from the group consisting of glycosyl diacylglycerols, sterolglycosides, glycocerebrosides, phosphoglycolipids, and any combination thereof.

5. (Twice Amended) The process according to Claim 1, wherein the glycolipids are selected from the group consisting of

- monoglycosyldiacylglycerol,
- diglycosyldiacylglycerol,
- triglycosyl diacylglycerol,
- tetraglycosyldiacylglycerol,
- glycosyl ceramide,
- diglycosyl ceramide,
- steryl glycoside,
- steryl diglycoside,

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cont.
- glycosyl phosphatidylglycerol, and
 - diglycosyl phosphatidylglycerol.

Kindly add the new Claims 18-23, as set forth below:

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18. (New) A process according to Claim 1, wherein the lipid acceptor is a secondary lipid acceptor, and wherein the secondary lipid acceptor is selected from the group consisting of a monohexosyldiacylglycerolipid, a dihexosyldiacylglycerolipid, a trihexosyldiacylglycerolipid, a tetrahexosyldiacylglycerolipid, a glucocerebroside, a dihexosylcerebroside, a sterolglycoside, a steroldiglycoside and a phosphoglycolipid.

19. (New) The process according to Claim 1, wherein the nucleic acid molecule codes for a protein having the enzymatic activity of a processive lipid glycosyl transferase that successively transfers glucose to a lipid acceptor.

20. (New) The process according to Claim 1, wherein the lipid acceptor is a primary lipid acceptor, and wherein the primary lipid acceptor is diacylglycerol, sterol, phosphatidylglycerol or ceramide.

21. (New) The process according to Claim 1, wherein the glycolipids are glucosyl diacylglycerols, sterolglucosides, glucocerebrosides or phosphoglucolipids.

22. (New) A process for the production of a glycolipid in a transgenic cell or an organism by the use of a processive lipid glycosyl transferase that successively transfers a hexose residue to a lipid acceptor, comprising the steps of:

- transferring a nucleic acid molecule that codes for a protein having the enzymatic activity of a processive lipid glycosyl transferase to the cell or the organism, the protein having an amino acid sequence which is at least 60% identical to the sequence selected from sequences in the group consisting of SEQ ID NO. 2 and SEQ ID NO. 4;

- expressing the protein having the enzymatic activity of a processive lipid glycosyl transferase under suitable regulatory sequences in the cell or the organism; and

- recovering the glycolipid synthesized by the enzymatic activity of the processive lipid glycosyl transferase from the cell or the organism, if desired.

23. (New) The process according to claim 22, wherein the protein having the enzymatic activity of a processive lipid glycosyl transferase has an amino acid sequence